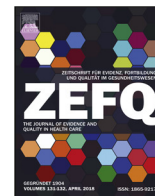




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Beteiligung von Patientinnen und Patienten / Patient Participation

## Resources and resilience factors: How advanced practice nurses can promote resilience in hearing and visually impaired people – A grounded theory perspective from Switzerland



*Ressourcen und Resilienzfaktoren: Wie Advanced Practice Nurses die Resilienz von Menschen mit Hör- und Sehbehinderung fördern können: eine Grounded-Theory-Perspektive aus der Schweiz*

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### ABSTRACT

**Background:** There is an increase in hearing and visual impairments worldwide. Those affected have a reduced ability to participate in social contacts, mobility, and access to information. Until now, there have been no recommendations for Advanced Practice Nurses (APNs) in Switzerland to support this group of people in the autonomous organization of everyday life in their own homes.

**Objective:** The aim of the study was to understand how people integrate their dual hearing and visual impairments into everyday life to derive recommendations for APNs to support individuals to manage their daily lives.

**Methods:** Following the constructivist approach of grounded theory, guided interviews and a questionnaire survey with hearing and visually impaired persons (n = 46) over 70 years of age on independent daily living were conducted (concurrent embedded strategy). In addition, demographic data on age, gender, living situation, and use of assistive devices were analyzed.

**Findings:** Based on the results, a communication-based dynamic resilience model (CoRes) was developed. This article represents the third phase of the three-stage-model. Integration of altered hearing depends on resources and risk factors.

**Conclusions:** Advanced practice nurses can use recommendations from this research to actively help individuals and their families build resilience.

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### ZUSAMMENFASSUNG

**Hintergrund:** Die Zahl der Hör- und Sehbehinderungen nimmt weltweit zu. Die Betroffenen sind in ihrer Fähigkeit zur Teilnahme an sozialen Kontakten, ihrer Mobilität und ihrem Zugang zu Informationen eingeschränkt. Bisher gab es in der Schweiz keine Empfehlungen für Advanced Practice Nurses, um diese Personengruppe bei der autonomen Gestaltung des Alltags in der eigenen Wohnung zu unterstützen.

**Zielsetzung:** Ziel der Studie war es zu verstehen, wie Menschen ihre doppelte Hör- und Sehbehinderung in den Alltag integrieren, um daraus Empfehlungen für Advanced Practice Nurses abzuleiten, welche die Betroffenen bei der Bewältigung ihres Alltags unterstützen.

**Methoden:** Nach dem konstruktivistischen Ansatz der Grounded Theory wurden leitfadengestützte Interviews und eine Fragebogenerhebung mit hör- und sehbehinderten Personen (n = 46) über 70

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Hörbeeinträchtigung  
Kommunikation

Jahren zur unabhängigen täglichen Lebensführung durchgeführt (Concurrent Embedded Strategy). Zusätzlich wurden demografische Daten zu Alter, Geschlecht, Wohnsituation und Hilfsmittelnutzung analysiert.

**Ergebnisse:** Auf der Grundlage der Ergebnisse wurde ein kommunikationsbasiertes dynamisches Resilienzmodell (CoRes) entwickelt. Dieser Artikel stellt die dritte Phase des dreistufigen Modells dar. Die Integration der veränderten Anhörung hängt von Ressourcen und Risikofaktoren ab.

**Schlussfolgerungen:** Advanced Practice Nurses können Empfehlungen aus dieser Forschung nutzen, um Einzelpersonen und ihre Familien aktiv beim Aufbau von Resilienz zu unterstützen.

## Introduction

Sensory abilities decrease with age. More than 5% of the world population, about 466 million people, are affected by hearing loss [1]. In adults, the disability of hearing loss is defined by thresholds that are greater than 40 dBHL in the better hearing ear. The combination of hearing loss is particularly common with visual loss in older adults [2,3]. Hearing and vision impairment are important issues in geriatrics, as it is associated with numerous health problems [4,5]. Hearing loss especially accelerates cognitive decline and increases the risk of dementia. It is also well known that people with hearing loss are often affected by depression, have poorer balance, and have therefore an increased risk of falling.

People with hearing loss often have difficulty following conversations and often withdraw, which is why social isolation is also common among older people with hearing loss. Research has shown that there is a significant link between hearing and visual impairment and mental health [6]. Hearing loss often occurs gradually and subtly with age, initially affecting the recognition of high-pitched sounds. Affected people often become aware of their hearing difficulty because of their social environment [7]. Especially among older people, the use of suitable aids to restore hearing is prevalent. However, they do not replace the loss of hearing, and creates further challenges for people with a dual sensory impairment (Authors of this study).

It is assumed that concurrent sensory impairment influences communication and alters everyday life, effecting peoples' resilience. Resilience is understood to be the ability to, or the process of, reintegration, in people who must reorient themselves after an event (or disorder) in their lives [8]. Buzanell [9] divides the process of developing resilience into five steps: (1) creating a new normality, (2) creating identity anchors, (3) cultivating and using communicative networks (social capital: resources that can be mobilized through social relations), (4) constructing one's own view of things, recreate the world for oneself, and (5) allowing, but setting aside negative feelings to focus on positive ones, such as hope and self-efficacy. Interventions that include these communicative processes coupled with communication strategies can be used to promote resilience [9].

Existing studies address the concurrent comorbidity of hearing and vision impairment [6], primarily using cross-sectional and other quantitative methods of testing vision and hearing. There is a dearth of qualitative findings from the perspective of affected individuals, as existing studies are large population studies that provide too little information about how people with hearing and vision impairment manage their daily lives.

Today, nurses are the first point of contact when activities of daily living can no longer be performed independently. Nurses need the expertise to recognize sensory loss and offer appropriate support to those affected to mitigate the associated psychological challenges [10,11]. At the same time, they can use assessment tools to systematically counteract the risk of accidents [11–13]. Nurses also provide information about the use of assistive devices and can support affected persons to use those in everyday life

according to their situation [14]. These types of interventions can help affected individuals perform activities better and more safely, which can increase self-management skills and minimize feelings of loneliness [15]. Unfortunately, nurses are limited in their support of the hearing and visually impaired because of a lack of evidence-based knowledge on how environmental factors influence the design of activities for this population. In addition, Advanced Practice Nurses (APN), who are increasingly responsible for the provision of primary health care, are also constrained because of this lack of evidence and absence of tailored counseling programs for this cohort. Instead, APN use their clinical experience to support the hearing and visually impaired person's ability to live autonomously and independently for as long as possible. It is imperative that clinical practice be based on evidence; therefore, research that explores how to support the living environment of hearing and visually impaired persons, along with descriptions of experiences from a personal point of view is essential.

### Research objective and question

The aim of the study was to understand how people integrate their dual hearing and visual impairment into everyday life. Therefore, exploratory research was conducted into the question of how persons of advanced age organize their everyday life. The aim was therefore to develop recommendations for a care counseling service which serve to support persons of advanced age in organizing their everyday life [7].

The results will help support people with dual sensory impairment in managing everyday life and provide an evidence-based foundation for care decisions.

### Material and methods

The research procedure was based on a concurrent embedded strategy [16] (also see publication 7). With the aim of understanding how people integrate their hearing impairment into everyday life, empirically based support suggestions by APN should be derived from this.

Supplemental quantitative data were obtained via a questionnaire before or after each interview to assess participants' physical functioning and independence [18].

### Recruitment

People over 70 years of age from German-speaking Switzerland were to be included in the interview. In addition to enquiries with hearing aid acousticians, associations for people with hearing impairments were specifically contacted. The first author personally reported on the study in eight different association locations and thus gained the trust of participants to take part in the study. Newspaper advertisements and information on Facebook supported the recruitment activities that took place in coordination with counseling centers (Center for Hearing and Speech, Social Counseling SZB, Counseling Center for the Hearing Impaired and

Deafblind). Data collection took place between September 2013 and February 2016.

The criteria for participation was a hearing loss of at least 35% in one ear. In Switzerland, at the time of the study, hearing-impaired people received a lump sum for the fitting of a hearing aid from the old-age and survivors' insurance. In addition, the visual impairment with a visual performance of less than 100% to be able to address as broad a target group as possible.

#### *Description of the participants*

Participants (n = 46) came from nine German-speaking cantons, with most participants from Zurich (n = 19) and Basle-Land (n = 10), followed by St. Gallen (n = 5), Aargau (n = 4), Bern (n = 3), Thurgau (n = 2), and Basle-City, Lucerne, and Schaffhausen (n = 1 each). Most of the participants were women (57%). All persons were independent and able to manage their daily lives to a greater or lesser extent. The mean age was 78.4 (SD±5.3, min-max 70–87) years. Fifty-two percent of participants reported living with their spouse; all others lived alone. All but one of the participants reported having support persons in their daily lives. Twenty-four mentioned their spouse, their own child (n = 6), friends (n = 3), siblings (n = 1), or other unspecified individuals (n = 11).

#### *Data collection*

The guiding questions for the interviews were adapted during the initial conceptualization of the data so that the first author could ask more specific questions about the living situation after the first interviews. Two questions were asked in each interview:

a.) How did your hearing and vision impairment make itself felt in everyday life?

b.) In which situations do you manage to deal with the impairment and what are difficult moments?

Demographic data such as age, gender, marital status, education, training, most recent occupation, self-assessed financial situation, and type and duration of assistive device use were collected prior to each interview.

All digitally recorded interviews were conducted in person and transcribed into High German and archived at the university. Field notes and memos were taken before and after each interview to further support the data analysis.

A total of 42 interviews were conducted (n = 46) and they were 60- to 90-minutes in length. Except for two interviews, the interviews took place in participants' homes. There were 34 individual interviews, four couple interviews with both interviewees as study participants (three couples and two close friends), and four individual interviews where spouses were present at the request of the study participants.

#### *Data analysis*

The analysis of the data was based on the constructivist approach of Grounded Theory [17]. In the first step, an "initial coding" was carried out based on the various interviews. After the initial conceptualisations of the data, the "Focused Coding" followed. This process took place in exchange with other project members and in study papers. The analysis step of "Axial Coding" as well as "Theoretical Coding" took place in regular exchange with three experienced qualitative researchers and after the generation of results with three interview partners from the study population. In these two steps, the analysis kept moving between the existing data (constant comparison) by formulating questions to the data and providing answers to these questions from the data. The model was developed after several runs of analysis and finally in discus-

sion with the first and last author in comparison with existing research findings [25].

The results were discussed several times with hearing and visually impaired people at Pro Audito association events. The trustworthiness of the data was also confirmed by sending the results to all participants by post.

Suggestions, feedback as well as results from the discussions with affected persons, as well as with the research team, are reflected in the results section. The process of data collection and analysis was supported by the data analysis program Atlas TI 7.

After the quantitative data analysis was done using descriptive statistics using the statistical data processing programme SPSS 20.0, the calculated frequencies were compared with the qualitative results to be able to better interpret the composition of the study population.

#### *Ethical considerations*

Participation in the study was voluntary, meaning that participants could withdraw their participation at any time without facing negative consequences. However, they agreed within the framework of the Informed Consent that the data collected could continue to be used even if they withdrew from the study.

Informed consent was given verbally and in writing and, as required, with the involvement of the family. The study was approved by the Cantonal Ethics Committee Zurich (KEK-ZH No. 2014-0335).

#### **Results**

The presentation of the results must be viewed with the understanding that hearing impairment is weighted much higher than the visual impairment. The average hearing impairment for both ears was 68% (SD±22.9). Forty-four individuals reported wearing a hearing aid as a result. Impaired vision was reflected in the fact that the most frequently cited aid in everyday life was the wearing of glasses (n = 45). In most cases, the participants could integrate impaired vision well into everyday life; only two participants could not compensate for the loss of vision with glasses.

#### *Presentation the three-stage model of communication-based dynamic resilience (CoRes)*

Based on the question "how persons of advanced age organize their everyday life", a three-stage model was developed for the results section (Figure 1), which depicts the re-shaping of hearing and vision from the participants' perspective. In terms of the results, dynamic resilience stands for the ability to get up again after a critical life event, for example, the loss of hearing or sight, and to renew oneself, to give oneself a new identity. Resilience is dynamic, it can grow or decline. Resilience is not a property, rather, it is a dynamic process.

Based on the qualitative data it could be interpreted that the participants go through three stages during the initial processing of their hearing and visual impairment: First-stage: "Everyday life changes" (diagnosis); second- stage: "Coming to terms with the change in hearing" (reflection); third- stage: "Integrating the new hearing" (translation). The third stage presented in this article is about integrating the new hearing into everyday life. Here, the participants describe a process in which they behave rather actively or rather reactively, which can be described based on resources and risk factors. Acting and reacting alternate, they are on a continuum. Resources that help to integrate the new hearing into everyday life are the respondents' abilities to adapt to everyday situations despite hearing impairment. The analysis shows that for the inter-

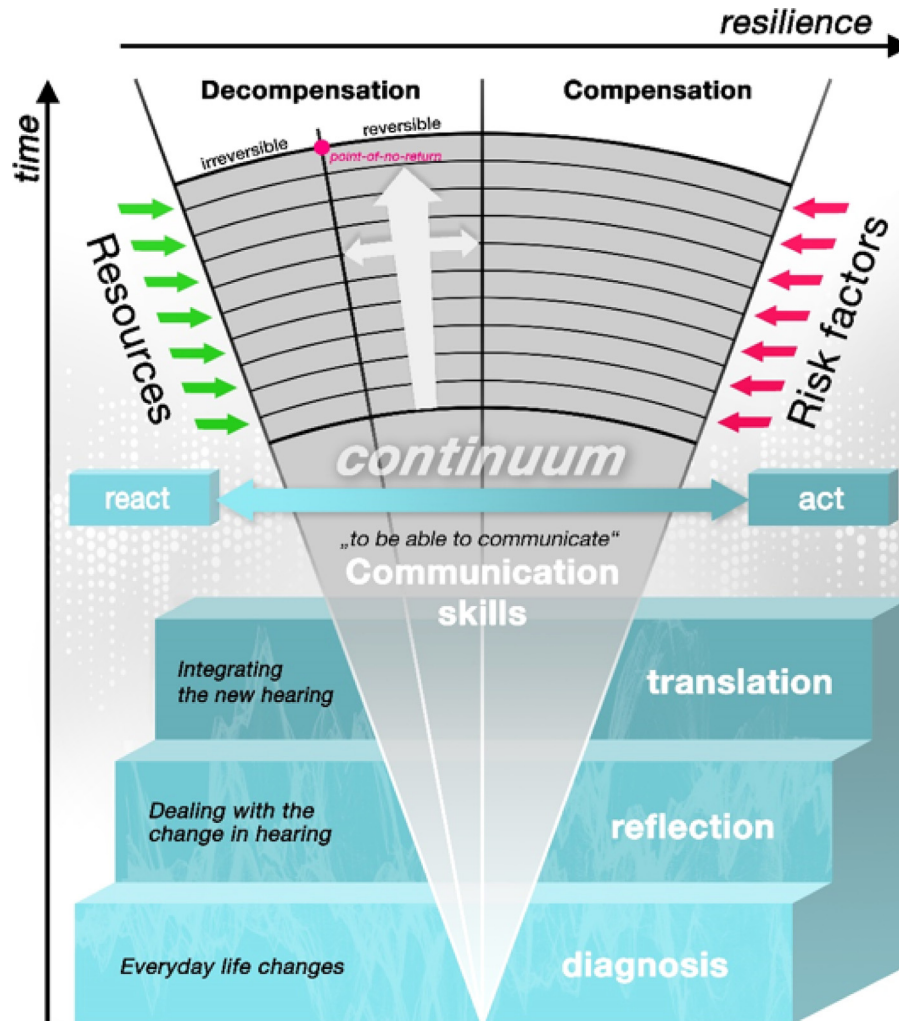


Figure 1. The “CoRes” three-stage model of communication-based dynamic resilience” [7].

viewees, being courageous - having the courage to reveal oneself is a significant resource for finding one's way in everyday life with hearing and vision impairment. Similarly, the resource of Being able to adjust and arrange oneself to situations helped adjust to new situations. The respondents experienced that they had to assert themselves in everyday life to find a balance. Support from partners and family was considered valuable and supportive by all respondents.

Across the three-stage model, being able to communicate is vital to participant wellbeing and central to resilience. With the first and second stage, the affected person realizes that everyday life has changed and is required to come to terms with it [7]. The translation stage describes the integration of the new hearing.

Based on the results, it became clear that the participants tended to behave actively, or rather reactively, in the process of integrating the new hearing; this is equivalent to a continuum, on which acting and reacting constantly alternate. The ability to communicate is central to this process and mediates if existing resources (abilities) can be used. If the ability to communicate is limited, everyday life cannot be managed independently, or those affected are dependent on the help of others. As shown in the figure, the demands on one's communication skills, i.e., the ability or willingness to communicate with others, are low in the first stage (diagnosis), increased in the second stage (reflection), and most pronounced in the third stage (translation).

The participants had different experiences at the time of the interview, and this can be interpreted that those participants who had resources had greater resilience than those who had to cope with risk factors in everyday life.

A distinction is made between reversible and irreversible decompensation, which are separated by a point-of-no-return. If the point-of-no-return, in the adjacent figure, is crossed in the direction of “irreversible decompensation,” the participants have exhausted all available compensation options and compensation is no longer possible (“I have lost”). The study sample consisted of people for whom no one reached the point of return, as all reported resources that helped them to promote resilience. Resources and risk factors are described in more detail below.

#### Resources and risk factors

Resources that help to integrate the ‘new’ hearing into everyday life are the participants' abilities to adapt to everyday situations despite hearing impairment. The analysis shows that for the participants the resource “Courage - having the courage to reveal oneself” is important for coping with the impairment of hearing and vision in everyday life. Resources include the following categories: (1) having the courage to reveal oneself, (2) being able to adapt to situations and acceptance (3) being able to assert oneself and find a balance, (4) experiencing support from a partner and family, and (5) being able to deal with help and adjust to new situations.

*Risk factors* are described as factors that have a negative influence on resilience and thus make it more difficult to integrate the new hearing into everyday life. The risk factors include the following categories: 1. fear of deterioration; 2. Fear of being laughed at, and 3. use of aids makes me tired.

Resource 1: Have the courage to reveal yourself

Participants describe situations in which they had to stand up for their needs and were confronted with the question of whether “speaking up”, “talking to each other” was still suitable. For example, when a participant asks for microphones to be used during events so that they understand what is being said:

*“The lecture, first someone started without a microphone and then we started complaining and said, because we know the rooms, they have a microphone, so you should use it” (P4\_14\_769).*

To be courageous also means to inquire if something was not understood by the hearing-impaired person, or to acquire new knowledge be able to deal with hearing-enhancing aids. According to the statements of affected persons, the strength of character is essentially responsible for whether affected persons can adjust to new things:

*“And then I just have to say: You, I do not hear well, say it again, but a little slower. And you just have to repeat that x-times until they have finally, maybe grasped it” (P4\_14).*

The results show that the participants have had the experience that aids have to be demanded especially at public events; this also includes that those affected have had to overcome self-doubt, or shyness, to be able to ask others to introduce themselves by name so that they could orientate themselves.

Resource 2: Being able to adapt to situations and acceptance

The ability to be able to adapt for the participants refers to strategies that people with hearing impairments use in everyday life to integrate socially to be able to participate.

Participants report that on various occasions they consciously prepare themselves for active listening, for example by reading and thinking about the content of a play in advance. Being able to adjust to situations, and come to terms with them, also means that those affected often renounce the claim to want to understand everything that is said around them:

*“... and then sometimes I simply say: Yes. Even if I have simply not understood it” (P29\_321).*

In the interviews, the participants remember that they become involved in conversations in a different way when they realize that they understand little or hardly anything. One possibility is to specify the topic of conversation themselves, so that they can follow the conversation better. Participants also report that they escape difficult situations by actively leaving the situation to find time for themselves to calm down, for example by going to the toilet (P1\_150).

Being able to orientate oneself is very important in personal spaces, especially when both hearing and vision are severely impaired. It is important that people are able to orientate themselves according to what they are used to:

*“I know this apartment; I know the pitfalls of this apartment (...) and then always use buttons. Then it's always the fingers that give me orientation. With my hands I feel it, so it's important that everything has its place” (P22\_450).*

Resource 3: Being able to assert yourself and find a balance

The participants express that routine processes are helpful for them, even if it means that they must overcome and assert themselves. Participants find balance when they find time to adjust to what is being said, to follow their own pace.

*“If I have something in my head, then it is carried out and I now have Friday, I went to the market, in the pouring rain, I go to the market every Friday, I go shopping for fresh vegetables and fruits every Friday” (P22\_450).*

The participants report a regular rhythm that supports finding balance, which they follow in their daily lives:

*“This is the rhythm, getting up, having breakfast, then to the bathroom and afterwards I do gymnastics” (P29\_396).*

Resource 4: Experience support from partner and family

The interviews show that those who have a good social network and can rely on assistance within this social network can better integrate the hearing impairment into everyday life. The more people lose their hearing, the desire for more security grows. Life partners and family members become an important resource, even if the hearing impairment causes tension within the family:

*“I imagine when the woman is no longer there, or, well, that is horrible for me. Or when I can no longer talk to anyone, exchange thoughts, and so on. And what the others tell you, yes, you don't really understand, and so there it is - that's a big problem for me” (P21\_61).*

Hearing and visually impaired people experience support above all in organizations and associations, where they meet like-minded people:

*“Yes, in the Swiss Alpine Club, in the ski club, gymnastics, here in the gymnastics club. Gymnastics, I still do gymnastics, but together with the hearing impaired” (P5\_630).*

Resource 5: Dealing with aids, being able to adapt to new things

From the participants' point of view, the resource “Dealing with aids, being able to adapt to new things” means that they can be addressed by others using aids and thus become accessible.

Not only is it important for those concerned to be able to use the aids, but also for participants to be accompanied by individuals with experience in the equipment. For example, acousticians. The counseling offered by institutions who have experienced with hearing equipment is essential to learn how to use the appropriate aids:

*“I am a member of the Association of the Visually Impaired SBV (City B). And they have great staff who teach me how to use the milestone to record things I want to hear again from the computer ... or they choose the letter combination that I don't have to search for anyway. And with the computer it's a little different again and there's a program for it and I have one” (P7\_453).*

Risk factor 1: Fear of deterioration

The risk factor “fear of deterioration” encapsulates the participants' concern about further deterioration of their hearing or vision. In the interviews, however, it is also repeatedly expressed that the participants try not to struggle with such thoughts:

*“Yes, so of course I hope that it does not get any worse. That is already important for me, yes. (pause). And I simply accept the situation as it is now, or. I do not struggle with fate because of that” (P11\_5).*

With the hearing loss, most of the participants are worried about losing the ability to understand content and to become even slower in processing information:

*“But of course, memory is another point” (P21\_175).*

All participants are aware of the need to wear hearing aids:

*“Yes, they say that everything that is not trained is lost. I don’t want my ability to think to be lost” (P19\_0190).*

Risk factor 2: Fear of being laughed at

Participants speak of the fear of exposing themselves when they ask questions:

*“And then you also have to have the courage to say to this person: You, I didn’t understand you at all, can you say that again? But when four or five doctors are standing around the [hospital] bed, of course, then you don’t dare to say it either” (P4\_951).*

The participants report how embarrassed they are about enduring situations in which they understand nothing or hardly anything. They consider to what extent they should expose themselves to such situations, with the consequence that they avoid restaurants, or events where they meet many people. In situations where many people meet, the participants feel excluded or not understood:

*“Because I know that the others also have problems, I have no inhibitions. But in a place where people ask and talk, I simply feel reserved, but not that the others are to blame, I am to blame myself” (P29\_332).*

The participants reported on how they consciously go home to escape unpleasant situations. The fear of not understanding troubles the participants; they feel excluded and because they cannot participate:

*“This is the induction coil that looks like a listening device. I wear it, then I go to a restaurant and then people stop talking because they think I’m listening to them” (P18\_810).*

Risk factor 3: Use of aids makes tired

The participants describe that hearing becomes a conscious act when impaired, and that this conscious hearing requires concentration. On the one hand they need to grasp the sound of what they hear, on the other hand they have to understand the meaning of what they hear - and at the same time there is the difficulty that they cannot filter out background noise with a hearing aid:

*“One lives down here and it’s her birthday today and then I passed by yesterday and I had trouble understanding her; until I understood her. But she speaks just as quietly, she doesn’t notice. And the other colleague, she speaks quickly, and I have problems there, too” (P29\_445).*

In the interviews the participants say that the use of aids makes them tired; these include both hearing aids and visual aids:

*“It is work. And it makes tired then, the whole body tired” (P7\_449).*

The balance between resources and risk factors, as well as prompt support as soon as a hearing impairment is suspected, is predetermined by the degree of resilience and the further prognosis, i.e. either successful integration of the altered hearing into the everyday life of the person affected (compensation) or the threat of further progressive hearing impairment with the danger of permanent decompensation [25]. This is exactly where APNs can come in,

as they have a broad view with their extended expertise and can perceive the family as a system. Accordingly, they can counteract the loss of social participation and the extensive restrictions in the private lives of the affected persons and their relatives through their extended nursing practice by offering more in-depth care.

## Discussion

The results demonstrate that the integration of altered hearing and vision depends on the resources and resilience skills that individuals have acquired throughout their lives. Accordingly, dynamic resilience is understood in the CoRes model as a trait that develops and can grow, and/or decline. Dynamic resilience is never seen as a static moment. In terms of outcomes, it stands for the ability to get back up after a critical life event. For the participants in this research, the loss of hearing or sight, offers them an opportunity to renew oneself, to create a new identity. According to Petzold [19] identity is understood as the result of the synthesis of reciprocal identifications from different social and cultural contexts.

The results of the present study clearly show what possibilities exist for integrating hearing loss into life. This research underscores the importance of an individual’s ability to translate and assimilate a diagnosis. Based on the risk factors 1. fear of deterioration; 2. fear of being laughed at and 3. use of aids makes me tired, APNs can primarily focus on providing comprehensive information to those affected to give them and their families confidence in dealing with the impairment. For example, listening consciously causes fatigue as affected persons must actively to listen to be able to understand the contents of what others are saying. A comparison can be drawn here to the research of Anderson and Gagné [20], who also highlighted that increased focus on listening leads to fatigue and an increased need for rest. It also aligns with the findings of Buzanell’s [9] research that demonstrates nurses can assist hearing and visually impaired individuals in creating a new normal; this is achieved through assisting those with impairments to re-imagine their individual identity and creating strategies to maintain communication. In doing so, they can help affected individuals to fit in with society while gaining a new identity and, as a result, negative feelings can be transformed into positive ones.

From the available results we can see also reveal that participants do not always understand how to use hearing aids, nor are they convinced to wear them. A comparison can be drawn here with the research findings of Ciorba, Bianchini, Pelucchi, and Pastore [21], who highlight that hearing loss can lead to dissatisfaction in family life because information exchange is impaired, which has a significant impact on the organization of daily life. The consequences can include loneliness, isolation, dependence, and frustration. The present study results show that individuals with different hearing biographies try to adapt to the new hearing, but that it is experienced as a challenge when other risk factors are present.

The analysis of the interviews showed that hearing and visually impaired people must cope with everyday life to be able to find a balance. Affected people may feel insecure in the home environment, or navigating around their neighborhood, because they cannot hear everything nor recognize dangers. This means that they no longer feel as safe as they did before they became hearing impaired. A hearing aid compensates for these feelings of insecurity only to a limited extent, because the reaction time that is linked to understanding what is heard is slowed. It is important for people who wear hearing aids to do things at their own pace. This finding underscores the need for nurses to take more time to communicate with individuals who are hearing and visually impaired. In addition, strengthening existing skills can help those affected to cope better with the challenges of everyday life; how-

ver, it is often family members, such as daughters, who reveal that something is wrong and that changes need to be made. It is often only when accompanied by family members that those affected first turn to an acoustician.

The research participants highlighted that when they help others, their own disability is less obvious to them, which is also demonstrated in by other study results [22]. From serving others, people with disabilities receive a benefit that has a direct impact on personal self-esteem and further supports the development of resilience.

The findings reinforce on the one hand the need for adapted counseling and education services, and that these services are individualized and adapted to the respective needs. On the other hand, it can be deduced also that getting involved with social and community services can help decrease feelings of dependency and insecurity, especially when dealing with the help is unfamiliar or causes pain.

This research uncovers several recommendations specifically for APN-led care provision. The expertise of APN care should be focused on changing the way that individuals with auditory and visual impairment organize their daily lives. In this regard, this supports the findings of other studies from Switzerland that demonstrate how in-depth nursing practice in care and care-related provision creates clear added value that benefits not only individuals but the whole family [23,24]. This study adds further weight to the importance of nurses' involvement but within this unique population group and offers focused recommendations that can guide APN care.

#### Recommendations for APN-guided care

According to the CoRes model, considering resources and risk factors, different recommendations for a care consultation offer for people with hearing and visual impairment in the different stages result:

- **Support:** Hearing and visually impaired people can be supported by APN's to cope with their negative feelings about the diagnosis of hearing impairment and at the same time to focus on re-visualising their identities to support the building of resilience.
- **Involving, counseling, educating family members** (in the sense of working between the family and the APN):
  1. Talk to the affected person and the family member about the new hearing normal (create a new identity).
  2. Emphasize the importance of maintaining family rituals.
  3. Train relatives on how to support their family members who are hearing and visually impaired.
  4. Ensure coordination in assistive device care to the point of accompanying affected individuals and family members to the acoustician.
- **Consider time requirements:** When assisting the hearing and visually impaired, APN's must consider the increased time required for communication.
- **Use of resources:** caregivers help to use existing resources of the affected person (e.g. APN's can encourage the affected person to maintain existing social networks).
- **Resource promotion:** caregivers help to promote resources in the person affected:
- **Building social networks:** nurses can help individuals to build new social networks within the hearing-impaired community.
- **Helping people to help themselves:** APN's can specifically help hearing and visually impaired people to manage their daily lives independently.
- **Stability:** APN's can support patients in creating stable living situations.

- **Biography work:** APN's can help people to understand their hearing impairment in the context of their lives.
- **Understanding** APN's can help individuals to understand the importance of the commitment to adjust to their hearing and visual impairment, whilst supporting individuals to develop a sense of meaning despite the development of an impairment.
- **Goal attainment:** APN's can help individuals focus on goal attainment of adjusting to life with an impairment.
- **Activities:** APN's can motivate and support patients to engage in mental and physical activities with similar peer groups, which will support their adjustment to living with an impairment.

#### Conclusions

It is challenging for those who are newly diagnosed with a concomitant hearing and visual impairment to adjust to using both hearing and visual aids and integrated these into daily life. Nurses can support the ability of affected persons to communicate, by helping them to understand the causes and reasons for the change in hearing, and to make sense of hearing differently. There is a strong need amongst this population group for information on, and about, managing their hearing and visual aids. The recommendations described above are relevant for several disciplinary groups; however, APNs are ideally positioned to provide education and targeted interventions for those with hearing and vision impairment that promote the development of resilience.

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#### Conflict of interest

All authors declare that there is no conflict of interest.

#### CRedit author statement

Daniela Händler-Schuster: Development of the study protocol, data collection, data management, data interpretation, writing of the manuscript, critical comments on the draft manuscript. Development the CoRes Model with Markus Melloh.

Karen McBride-Henry: Content discussion and supplementary aspects, as well as Critical comments on the draft manuscript.

Gerhard Müller: Critical comments on the draft manuscript.

Markus Melloh: Critical comments on the draft manuscript. Development the CoRes Model with Daniela Händler-Schuster.

## References

- [1] World Health Organization. Deafness and hearing loss. 2021. <https://www.who.int/news-room/fact-sheets/detail/deafness-and-hearing-loss> (06.12.2021).
- [2] Heine C, Browning CJ. Mental health and dual sensory loss in older adults: a systematic review. *Front Aging Neurosci* 2014;6:83. <https://doi.org/10.3389/fnagi.2014.00083>.
- [3] Brabyn JA, Schneck ME, Haegerstrom-Portnoy G, Lott LA. Dual sensory loss: overview of problems, visual assessment, and rehabilitation. *Trends Amplif* 2007;11(4):219–26. <https://doi.org/10.1177/1084713807307410>.
- [4] Lee O, Park J. Association between successful aging activities and perceived health among older adults with hearing and/or vision impairments. *J Disabil Policy Stud* 2021. <https://doi.org/10.1177/1044207321998353>.
- [5] Liljas AE, Wannamethee SG, Whincup PH, Papacosta O, Walters K, Iliffe S, Lennon LT, Carvalho LA, Ramsay SE. Socio-demographic characteristics, lifestyle factors and burden of morbidity associated with self-reported hearing and vision impairments in older British community-dwelling men: a cross-sectional study. *J Public Health (Oxf)* 2016;38(2):e21–8. <https://doi.org/10.1093/pubmed/fdv095>.
- [6] Heine C, Browning C. Dual sensory loss in older adults: A systematic review. *Gerontologist* 2015;55(5):913–28. <https://doi.org/10.1093/geront/gnv074>, Epub 2015 Aug 27. PMID: 26315316.
- [7] Händler-Schuster D, Müller G, Melloh, M. "It's like being inside a capsule": How people aged 70 and over recognize and reflect on hearing and visual impairment - partial results from the KoRes stage model. *Zeitschrift für Evidenz, Fortbildung und Qualität im Gesundheitswesen* 2021, 167, 42–49. <https://doi.org/10.1016/j.zefq.2021.09.007>.
- [8] Richardson GE. The Metatheory of resilience and resiliency. *J Clin Psychol* 2022;58:307–21. <https://doi.org/10.1002/jclp.10020>.
- [9] Buzzanell PM. Resilience: Talking, resisting, and imagining new normalcies into being. *J Commun* 2010;60:1–14. <https://doi.org/10.1111/j.1460-2466.2009.01469.x>.
- [10] Bagley M. Helping older adults to live better with hearing and vision losses. *J Case Manage* 1998;7(4):147–52.
- [11] Wallhagen MI, Pettengill E, Whiteside M. Sensory impairment in older adults: part 1: hearing loss. *Am J Nurs* 2006;106(10):40–8.
- [12] Eekhof JAH, De Bock GH, Schaapveld K, Springer MP. Screening for hearing and visual loss among elderly with questionnaires and tests: which method is the most convincing for action? *Scand J Prim Health Care* 2000;18(4):203–7.
- [13] Kirby SD. A housing safety checklist for older people. *North Carolina Cooperative Extension Service*; 2004.
- [14] La Grow S, Robertson MC, Campbell AJ, Clarke GA, Kerse NM. Reducing hazard related falls in people 75 years and older with significant visual impairment: how did a successful program work? *Inj Prev* 2006;12(5):296–301.
- [15] Boerner K, Reinhardt JP, Horowitz A. The effect of rehabilitation service use on coping patterns over time among older adults with age-related vision loss. *Clin Rehabil* 2006;20(6):478–87.
- [16] Creswell JW. *Research Design. Qualitative, Quantitative, and Mixed Methods Approaches*. 3rd ed. Los Angeles: SAGE Publications, Inc.; 2009.
- [17] Charmaz K. *Constructing Grounded Theory: A practical guide through Qualitative Analysis*. Thousand Oaks, California: Sage; 2006.
- [18] Finch E. OARS-IADL (Older Americans Resources and Services Scale-Instrumental Activities of Daily Living), in *Physical Rehabilitation outcome measures: A guide to enhanced clinical decision making*. Canadian Physiotherapy Association. 2002:182–5.
- [19] Petzold H. *Integrative Therapie, Modelle, Theorien & Methoden Einer Schulübergreifenden Psychotherapie*. Germany: Junfermann, Paderborn; 2003.
- [20] Anderson Gosselin P, Gagné JP. Older adults expend more listening effort than young adults recognizing speech in noise. *Journal of Speech Language and Hearing Resesearch* Jun;54 2011;3:944–58. [https://doi.org/10.1044/1092-4388\(2010/10-0069\)](https://doi.org/10.1044/1092-4388(2010/10-0069)), PMID: 21060138.
- [21] Ciorba A, Bianchini C, Pelucchi S, Pastore A. The impact of hearing loss on the quality of life of elderly adults. *Clin Interv Aging* 2012;7:159–63. <https://doi.org/10.2147/CIA.S26059>, Epub 2012 Jun 15. PMID: 22791988; PMCID: PMC3393360.
- [22] Händler-Schuster D. Study protocols, unpublished documents 2016.
- [23] Müller-Staub M, Zigan N, Händler-Schuster D, Probst S, Monego R, Imhof L. *Umsorgt werden und umsorgen: Leben mit mehreren Langzeiterkrankungen (Leila) - Eine qualitative Studie zum Beitrag von APN in integrierter Versorgung [Being cared for and caring: living with multiple chronic diseases (Leila)-a qualitative study about APN contributions to integrated care]*. *Pflege* 2015;28(2):79–91. <https://doi.org/10.1024/1012-5302/a000410>, PMID: 25813571.
- [24] Weilenmann M, Händler-Schuster D, Petry H, Zanolari D, Schmid-Mohler G, Beckmann S. Patient satisfaction with the quality of counseling provided by advanced practice nurses specialized in multiple sclerosis: A quantitative analysis. *J Neurosci Nurs: J Am Assoc Neurosci Nurs* 2021;53(2):99–103. <https://doi.org/10.1097/JNN.0000000000000578>.
- [25] Barz T, Melloh M, Lord SJ, Kasch R, Merk HR, Staub LP. A conceptual model of com-pensation/decompensation in lumbar segmental instability. *Medical Hypothesis* 2014;83(3):312–6. <https://doi.org/10.1016/j.mehy.2014.06.003>.